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ABSTRACT

Computers, depending on how they are used, can be both a boon and a menace to health and performance. With the increasing presence of computers on campus, journalism educators must make sure they are not creating a new class of disabled persons among their students and disabling themselves in the process. Journalism schools across the United States are increasingly equipped with computer technology, with more and more tasks carried out via computer. Experience in professional newsrooms, first in Australia in the 1980s, and then in the United States, shows that rapid computerization was followed by an epidemic of repetitive strain injuries. Schools or departments of journalism have felt immune to the epidemic, reasoning that neither students nor professors spend as much time at computers as do working journalists. However, evidence from several journalism schools (such as Columbia and the University of Florida) indicates that the problem is developing, that nobody talks about it much, and that ergonomics (human engineering for the workplace) belongs in the classroom. Some universities have attempted to prevent cases of repetitive strain injury by equipping computer labs with ergonomically correct workstations and chairs, but sometimes funding for computers is easier to come by than funding for furniture. Both students and working professionals worry about future job discrimination because of past medical history. (Twenty notes are included.) (SR)

Potential Physical Disabilities in Computerized Journalism Education

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The fall of 1988 at the University of Missouri School of Journalism was much like any other semester in the 80 year history of the school. Bent over their typewriters, students mastered the basics of newswriting, struggling with leads as wads of paper collected at their feet. They type faster and faster against deadline, the clacking of the keys stopping only when the students yanked the stories from the roller and penciled in corrections. If they were still typing at deadline, the professor could sneak up behind them and turn off their machines, leaving their copy like a boat dead in the water.

On Jan. 25, 1989, the School of journalism jumped head-long into the digital age by announcing a multi-million-dollar grant from IBM, the largest in the school's history. It would replace the aging electric typewriters in the writing labs and mini-computers in the Missourian newsroom with IBM's latest PC hardware and link it into a new school-wide network, which included the school's three media outlets -- its competitive community newspaper, its National Public Radio outlet and its network-affiliated television station. "The 21st century has arrived early on this campus," Dean James D. Atwater announced. "Nobody in the country in journalism education, as far as I know, has anything like this." (1)

In an editorial in the *Missourian* on Jan. 26, 1989, Dean Atwater predicted that the grant "will change the school in ways that we cannot even anticipate, so vast is the potential. The goal is to computerize the school so we can whiz information back and forth, tuck it away and pull it out, combine it with this finding and that, and prepare a paper, or a lesson, or an ad, or a videotape, or something entirely new that no one has considered yet." Nothing suggested that such computerization of journalism education might expose faculty and students to any of the maladies and physical disabilities that had accompanied the computerization of newspapers in the United States and abroad.

Ralph W. Clark, IBM vice president and assistant general manager/market development, saluted the new partnership because of the great potential for advanced use of technology in the media industry and predicted that in a society where computer literacy

was increasingly important, MU journalists would be better trained to strengthen the news business (2).

It was the perfect relationship between the academy and industry. The school would test IBM's state-of-the-art equipment and software for both the journalism profession and journalism education; IBM would market resulting computer systems to other schools and to the journalism industry. Because of the international reputation of the country's first school of journalism and the global reach of IBM, the project was far more than a grant to an individual university. The results could be expected to be disseminated widely, thereby influencing how journalism would be taught and practiced throughout the world.

The first phase of the project would be completed no earlier than December 1989, Brian Brooks, the school's project coordinator, predicted when the grant was announced (3). Brooks and his colleague Phill Brooks, no relation, worked non-stop throughout the summer. When faculty returned to classes in August 1989, nearly 300 new micro-computers were in place in newsrooms and faculty offices and the writing labs had been computerized, Theoretically --and only that because most of the faculty knew little about computers and not all software was in place -- a professor would never need touch paper again, although the writing labs and newsrooms were equipped with printers. In reporting and editing courses, exercises and exams could be generated and distributed by computer.

- Students could transmit their work electronically to terminals in professors' offices where they could be graded electronically and returned to the students' computers with a couple of keystrokes.
- Grades could be recorded and graphed through Lotus 1 -2-3,
- Notes that a professor once scribbled on the chalkboard now could be typed in at the professor's terminal and then projected on a large screen in front of the writing lab.
- In the classroom, student work could be projected on the large lab screen or mass copied to all student terminals.
- The *Missourian* morgue and the *AP* wire were computer-accessible to both students and faculty.
- Students could work extra hours in the lab on simulated exercises and tutorials on a variety of subjects.
- No more flipping off the typewriter or ripping out the paper if the students missed deadline. Flip the VDT switch and the story was blown out of the water, a dramatic illustration that a story that doesn't make deadline doesn't exist.

Possibilities were endless and incredibly seductive: data-base searches, spell-checks, computer-analysis of text, e-mail, electronic bulletin boards, *AP* style book, newsletter preparation, the university mainframe and beyond, nobody need ever leave his or her terminal except to go to the restroom or get a cup of coffee since all food and drink were prohibited in the new labs. The computers promised to make teaching basic journalistic skills faster, easier and less repetitive, freeing the professors for other pursuits.

Although the Missourian was several generations into mini-computers - - when Brian Brooks joined the faculty as a news editor in 1974 the Missourian had a few computers stuck off in a corner -- only a handful of faculty members used computers before the IBM grant. Most of those had bought them out of their own pockets. Faculty members jumped or were pushed into a number of training sessions, some as simple as how to boot the machines but most centered on how to manipulate computer functions.

Computer experts from news organizations and other schools like the University of Florida and the University of Texas were invited to share their experiences. Most of the presentations, as well as the focus of the grant, were on computer applications rather than physical conditions in the new computerized work place, but an executive from the *Los Angeles Times*, a leader in computerization of news operations, uttered an ancient word new to many ears at the School of Journalism. That word was "ergonomics," already a buzzword in the industry for trouble in computer paradise.

Look it up in the *Encyclopedia Britannica* (15th edition) and you are directed to "human-actors engineering" or the application of information on physical and psychological characteristics to the design of devices and systems for human use. The field of ergonomics, whose Greek roots are *ergon* for "work" and *numos* for "law," has been around since the early eighteenth century when it was first defined by Bernardino Ramazinni, an Italian physician who founded industrial medicine and whose work encouraged later workers' compensation laws. In the first comprehensive book on occupational diseases, Dr. Ramazinni described old-fashioned writer's cramp: "The diseases of persons incident to this craft arise from three causes: constant sitting...the perpetual motion of the hand in the same manner, and the attention and application of the mind, constant writing also considerably fatigues the hand and whole arm on account of the continual and almost tense tension of the muscles and tendons," (4) in the late twentieth century, the update is a kind of computer cramp which can cost a victim his or her career.

. With the Industrial Revolution came a slew of occupationally-related health problems and nerve and tendon conditions with nicknames like "stitcher's wrist," "butcher's elbow,"

"bricklayer's shoulder," which if ignored could leave a worker physically disabled. These were blue-collar maladies with greatest attention paid to occupations with the strongest unions such as meat packers and automotive workers. After the invasion of computers into offices, these cumulative trauma disorders (CTD) or repetitive strain injuries (RSI) like tendinitis, carpal tunnel syndrome and muscle spasms, started multiplying among white collar workers, including journalists. In the case of carpal tunnel, the nerve disorder can range from numbness and shooting pains in the arms to permanent inability to use the hand. (5)

The first hint that many American journalists had that the pain in their wrists or shoulders was more than a temporary twinge came from Australia where the rapid computerization of newsrooms in the early 1980s was followed by an epidemic of repetitive strain injuries. Two Australian journalists writing in the *Columbia Journalism Review* in July/August 1985 sounded a warning "in some newsrooms, up to one-third of the people who work with VDT's are reporting mild to acute cases, and newspapers have begun spending heavily to stem the spread of injuries. Australian occupational health specialists say RSI may be the asbestosis of the 1980s." (6)

Not only were many reporters making a technological leap from manual typewriters to state-of-the-art VDTs, but their newsrooms' noisy, crowded conditions and poorly designed furniture contributed to stress and fatigue, forcing Rupert Murdoch's three dailies in Sydney to spend $3 million on a complete newsroom renovation.(7) Reporters already suffering from RSI tried cortisone injections, acupuncture or physical therapy With varying degrees of success, but the prognosis was grim: "The only thing they can do to relieve the pain and perhaps eventually recover is to stay away from VDTs." (8) One 27-year-old political reporter in the Canberra bureau of *The Sydney Morning Herald* experienced a sudden shooting of pain through his hands while punching in a story and soon not only was forced to dictate all his stories and wear special braces to support his hands. He found even simple tasks like turning on a water faucet agonizing. "It's too fatalistic to walk around thinking I'm buggered for life, but I do feel very restricted and it'd hard not to feel sad about it," he said, (9)

Almost like a new strain of flu, the malady spread quickly to the United States, striking particularly hard at West Coast papers like *The Los Angeles Times, The Fresno Bee, The Orange County Register and the San Jose Mercury News.* By 1989, American newspaper editors were finding that RSI wasn't just an occupational ailment for secretaries, garment cutters, raisin workers and washer-women. Reporters and editors as well as classified, circulation, mailroom and secretarial staff began to suffer in addition to

shoulder-arm-wrist problems, workers on computers also complained of eyestrain and headaches and worried about the effects of radiation, particularly on pregnant women.

John G, Taylor, a *Fresno Bee* news editor, was one of a 42 employees affected by RSI between May 1987 when the first case was reported at the *Bee* to late April 1989, when Taylor wrote an article about VDT-related injuries for the *ASNE Bulletin*. Ten out of sixteen copy editors and wire editors on his staff had already been affected, but that was nothing compared to the *Los Angeles Times* where more than 200 cases of RSI out of 1,100 reporters and editors were reported between 1985 and 1989. (10) Taylor warned that such figures do not even partially gauge" what is going on in computerized newsrooms. 'in fact, many papers have yet to acknowledge that ergonomic injuries exist."

With some irony, the same issue of the *ASNE Bulletin* contained an article headlined, "News about people with disabilities interests a growing 'minority" in which the director of Disability Focus, Inc., complained that "as long as editors don't see disabilities as news, we'll continue to find space travel, the trade balance, the drug crisis and the peccadillos of public figures in the news, but no mention of the over-$100-billion price tag on dysfunctional disability programs." (11)

By June 1990 The Newspaper Guild reported that surveys conducted by locals in the U.S. and Canada had found that more than 1,500 Guild represented employees with developed RSI symptoms compared to fewer than 200 cases reported the previous year, "Undoubtedly, there are many more than 1,500 cases," TNG Research & Information Directors David J. Eisen told *The Guild Reporter*. (12) The same article reminded readers that the U.S. Bureau of Labor Statistics had reported that RSI was the fastest-growing occupational injury in the nation.

In many respects, schools or departments of journalism have felt immune to the epidemic, reasoning that neither students nor professors spend as much time on VDTs as do working journalists. Such reasoning is rapidly becoming as outdated as an old Royal manual typewriter. The three or four hours a student may spend in a writing lab each week is probably only a fraction of actual computer time as university labs keep late-night hours and many schools encourage students to have their own computers. introduced to computers as early as pre-school and schooled in computer games as well as elementary and secondary keyboarding courses, many students arrive at the university computer-literate, but they may not know their ergonomics or bother to adjust the height of a chair unless reminded.

At the faculty level, the University of Missouri School of Journalism experience already has shown that once in place a computer system offers unlimited opportunities for information retrieval, writing projects, internal and external communication that go far beyond basic word processing. When the OS/2 is installed at the School of Journalism in the summer of 1992, faculty members will be able to do more than one computer function at once or multi-tasking. Ralph Lowenstein, Dean of the University of Florida's School of Journalism and Communication, which has been a pioneer in computerized journalism education, recently visited the University of Missouri and was surprised at how much computers were used at the school. "Everyone was sitting at a computer doing something. I don't believe our faculty spends that much time at computers."[1]

Although most schools employ computers to some extent, only a few have extensive programs and for the most part those have developed over the last six or seven years. Unlike newspapers where union action, law suits, workers' compensation claims and overall better reporting of the symptoms have forced the industry to act on the problem, the academy lacks a strong union and students move on after only a few years. Yet evidence is turning up among faculty and students that suggests ergonomics belongs in the classroom. "I haven't hear anybody in journalism education worried about it, but I guess it's just a matter of time," said Helen Allard, who handled day-to-day supervision of computerization at the University of Florida School of Journalism and Communications between 1984 and 1987.

Kurt Kent, the assistant dean of journalism graduate studies at Florida, knows of about a half dozen faculty members, three or four staff members and several graduate students who have complained of computer-related ills. He is one of them, but he eased the pain in his forearms by changing his posture and the height of his chair and asking others to type his letters. Because his assistant also suffers RSI, the work is delegated to work-study students. Two graduates students who developed symptoms after beginning their studies also worked part-time in newspaper and public relations jobs. One, who has finished course, work will be dictating rather than writing a thesis, the other is taking time off. "There definitely is a problem right here," Dean Kent said. "It's a plague that's going to hit more and more of us in education as we get more and more tied to our keyboards."

Indeed, it is already happening at other universities, too, although nobody talks about it much. As in the newspaper industry, those afflicted have been slow to identify their physical complaints as RSI or slow to advertise their disabilities because they don't want

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[1] All comments from journalism educators and students in this paper were obtained through telephone interviews in May 1992.

to seem like wimps or because they fear job discrimination now or later. Despite growing awareness of the disabled as "the last minority" as *The Washington Journalism Review* identified them (13) and the Americans With Disabilities Act, many RSI victims admit they would be reluctant to hire a writer or an editor whose hands didn't work. An attorney who represents several newspapers told an "RSI...Newspapers at Risk" seminar in California last year that in addition to improving the work-place, "newspapers also might reduce their RSI risk by more careful screening of job applicants -- spotting those who may have greater propensity toward carpal tunnel syndrome." (14) Such candidates no doubt would include anyone with a previous workers' compensation claim or medical record, but women, older persons, people with small wrists or small hands, anyone with a family history of diabetics or fluid retention and the country's most intense journalists might be at risk if a list were compiled from recent literature.

Like members of a secret but growing fraternity, RSI victims find each other and eagerly share hints on how writing with a pen wrapped in layers of paper is easier on the hand or what braces, splints, voice-activated computers, wrist supports or occupational therapy might make work less painful. Friends and relatives pass along newspaper clippings and magazine articles about new treatments. While the debate continues about just when the injury happens and who is responsible for trying to reclaim the worker's productivity and health. Almost everyone agrees that education and early identification and treatment is essential in preventing debilitating damage.

At the Columbia Graduate School of Journalism this fall, each student will receive selections from a *Newsday* booklet on repetitive stress injuries and how to prevent them. Panels on the subject have also been held and the school works with experts from the Columbia Health Service. Columbia is perhaps more active in educating its students about work place injuries than other schools of because of its location in the nation's communication center and because *Newsday* turned to the school for replacement help after staffers were afflicted by RSI. "We worry about trying to teach our students how to use the computers," said Ken Goldstein, a professor who also is a science writer.

In the mid-1970s, when this author was a professor there, Columbia students heard about the wonders of computerized newsrooms from Columbia graduate Joseph M. Ungaro, then managing editor of the Westchester Rockland Newspapers, but they did all their work on manual typewriters. As newspaper laboratory director, this author was approached by computer vendors eager to install their wares for demonstration purposes, but administrators were reluctant to leap too soon into the new technology. Only about four years ago -- just about when *Newsday* was reeling from RSI cases -- did the school

acquired computers in any numbers more than 100 or about one for every two students. All faculty members have computers.

Today, Columbia boasts a sophisticated program in computer-assisted reporting instruction. All students are required to take a basic course in the fall, all students receive extensive instruction in a variety of data bases and programs like Lotus 1 -2-3, and many students enroll in a computer-assisted national reporting course in the spring. The one-year master's program has become even more intensive with computers.

Two years ago when Tony Blass, a St. Paul *Pioneer Press* reporter only a couple of years out of college, enrolled "to learn how to write better," he figure he could handle the first-semester RW1 (Reporting/ Writing) course with one hand tied behind his back. By late October, Blass only had one hand to use. Goldstein, one of his professors, recalled that Blass's hands "just froze up...he couldn't use the computer any more." The first reaction was that Blass would have to drop out of school.

For Blass, the onset of carpal tunnel syndrome was swift. Like many victims, he remembers exactly when the pain started. He was throwing a ball when his hand tightened up. Tests at Mount Sinai Hospital pinpointed mild carpal tunnel in his right hand. And he wasn't the only one in the class.

"A half dozen of my classmates -- and that's a conservative estimate-- reported similar conditions to me," Blass said. "He disagrees that students don't use the computer long enough each day to put themselves at risk for RSI. "Journalism students use the computer more than daily reporters. The work load at Columbia was more intense than in the newsroom."

Robin Reisig, a Columbia adjunct who also works at *Newsday* said, "It's incredible as hard as our students work that so few get early symptoms. It is mostly the hardworking,driven students who get it -- just like in the newspaper business." One news executive, in fact, called RSI "an injury of overwork." (15) Reisig has encouraged some students experiencing early complaints like aching arms at night to submit their work in writing rather than typing the assignment on the computer, but they persist in typing.

Computers are addictive as *Los Angeles Times* reporters found out, "We used to do anything to avoid using our old manual Olympics. We'd take notes by hand, anything," said Laurle Becklund, who developed tenosynovitis, an inflammation of tendons and tendon sheaths, in both arms after switching to VDTs. "When we got VDTs, we were thrilled. They were so convenient that we began using then for everything." (16) They

fit in nicely with the rapid pace of other new technologies and services like fax machines and overnight deliveries, pushing back the deadlines but also increasing the physical and mental stress. Such stress can cause muscles and tendons to become fatigued and often inflamed, particularly when worked long and hard in awkward positions. (17)

Because it attracts older students, Columbia is seeing applicants who have already acquired carpal tunnel syndrome. Two years ago Associate Dean Stephen Isaacs advised one woman to wait out a year before attempting the course. She was graduated this spring. Another applicant, Isaacs said, has asked for special consideration on the writing test because of carpal tunnel syndrome but will receive no special deadline treatment if admitted.

Blass survived his year at Columbia by using his hands as little as possible. He returned to St. Paul after his one-year leave of absence for the security of health insurance and a union newspaper. "I came back and found a dozen people have carpal tunnel. People were all bandaged up and four people were out on six-month leaves." His symptoms returned within two months of being back on the job, but he received treatment at a local hand rehabilitation clinic and takes medication to relieve the pain.

He worries about future discrimination because of past medical history, "Only a fool with this condition wouldn't expect to meet discrimination down the line no matter how smart or talented you are. You have to make yourself more versatile, use your brain more than your hands," he said at the end of his last day as a *Pioneer-Press* suburban reporter.

He was leaving for Hong Kong and a job with the *Far Eastern Economic Review* where he will be working on a computer but perhaps with more flexibility in setting his own schedule.

Columbia, Florida, Missouri and other universities have attempted to prevent cases like Blass's by equipping computer labs with ergonomically correct workstations and chairs, but sometimes funding for computers is easier to come by than funding or furniture. The School of Journalism at Missouri refurbished its newsrooms and labs by going into debt with the university administration. At St. Bonaventure University in New York, Douglas Carr, chair of the Department of Mass Communications, used departmental funds to buy faculty chairs but had to convince the university to approve a capital expenditure to buy some 15 chairs for the laboratory nearly four years after computers were installed. Competing for funds with other departments wanting standard desks and file cabinets, he found it hard to sell the administration on the idea that the chairs were for student safety, "Because it's cumulative, the damage isn't as dramatic as an explosion in a

chemistry lab. The explosion occurs over weeks and years of punishment," he said. He compared computer use to cigarette smoking, suggesting that one day a government warning may appear on the computer screen advising that the use of the product may be hazardous to your health.

At Missouri, only student areas were redesigned for computers, Previously a special grant had provided the graduate faculty with about a dozen computer desks, but most faculty and staff had standard desks and chairs, By January 1991 the "J-Net News" had to issue a "chair thief" warning:

> Those blue chairs we bought two years ago for the computer labs were bought for that purpose, not for faculty and staff offices.
>
> Although a few of you shelled out money for some of that furniture, most of you did not. It is unbecoming of faculty and staff to steal chairs from students, which is exactly what has happened in the *Missourian* newsroom. Students there are having to scramble for chairs that have found their way into offices.
>
> The chair police have been by your office to reclaim these or soon will. You can help by returning the chairs and saving us the trouble. (18)

The chair police issued another warning, this time by e-mail, the following year as an IBM inspection tour neared. Chairs were still missing. At least at Missouri, journalism faculty members were realizing that as *MacUser* readers were told in 1991: "When it comes to comfort, convenience, and safety...when and how you use your computer are as important as the design of the computer itself."(19)

Kurt Kent at Florida used to clip every article he saw about computer- related ills, but no more. Lately he has been overwhelmed by the number of articles dealing with the subject. A basic Dialogue search for this paper was done at the author's terminal as part of a library research project exploring how easily faculty and staff can adapt to data-base searches. The experience was heady. Using the search words "carpal tunnel" and "journalism" quickly produced 42 articles on carpal tunnel and RSI in the last two years, including regional magazines which would have been difficult to discover in traditional research.

Increasingly readers of consumer and trade publications are learning that the computer can be both boon and menace to health and performance, depending on how it is used. *Compute!* pointed out in a 1991 article, a computer may enable the disabled but may also shower radiation, strain eyes and shatter bodies.(20) As journalism educators search for ways to encourage disabled students to enter and succeed in journalism, they must also

make sure they are not creating a new class of disabled among their present students and disabling themselves in the process. Otherwise, journalism education, like the newspaper industry before it, can paraphrase Walt Kelly: "We has seen the disabled and it is us."

Notes

1. *Missourian* articles cited in this article were retrieved through J-Net, electronic morgue. This article, by Nancy Logan, appeared on Jan. 26, 1989.
2. Ibid.
3. Ibid.
4. M. I. Stein, *Doctor says RSI is not new,"* **Editor & Publisher**, May 18, 1991, p. 32.
5. Angela Gunn, *Healthier typing with keyboard enhancements*, **PC Magazine**, Feb. 25, 1992, p. 314.
6. Tony Horwitz and Geraldine Brooks, *Buggered for life – by VDTs*, **Columbia Journalism Review**, July/August, 1985, p 10.
7. Ibid.
8. Ibid.
9. Ibid.
10. John G. Taylor, *Editors are scrambling to deal with growing menace of VDT-related injuries*, **ASNE Bulletin**, May/June 1989, p. 34.
11. Mary Jane Owen, *News about people with disabilities interest a growing minority*, **ASNE Bulletin**, May/June 1989, p. 34.
12. **Guild Reporter**, June 1, 1990, p. 1.
13. Annemarie Cooke and Neil Reiser, *The Last Minority*, **Washington Journalism Review**, December 1991, p. 14.
14. Stein, *op.cit*, p. 33.
15. Diana Hembree and Sara Henry, *A Newsroom Hazard Called RSI*, **Columbia Journalism Review**, January/February 1987, p. 23.
16. Ibid.
17. Ronald E. Roel, *Wrist Watch*, **American Health: Fitness of Body and Mind**, July-August 1991, p. 72.
18. J-Net News, January 1991, p. 4.

19. Steven Bobker, *Work smart, work safe*, MacUser, December 1991, p. 221.
20. Gregg Keizer, *et. al.*, *Health and Computers*, Compute!, July 1991, p. 18.